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NEW AND INTERESTING EOCENE MOLLUSCA FROM THE GULF STATES.

BY GILBERT D. HARRIS.

The following new or interesting fossils belonging to the Lea Memorial Collection of the Academy of Natural Sciences of Philadelphia have been put into my hands for description and illustration by Rev. L. T. Chamberlain, of New York City. The greater part of them were collected by Mr. C. W. Johnson during the summers of 1894 and 1895. They are not all new species; but many are in such an excellent state of preservation that it has seemed worth while to have them figured by the skilled pen-artist, Dr. J. C. McConnell, of Washington, D.C.

JACKSON STAGE.

Pecten claibornensis Con. Pl. XVIII, figs. 1 and 2.

This species has been frequently referred to, but has not heretofore been figured.

Locality, Jackson, Miss.

Leda regina-jacksonis n. sp. Pl. XVIII, fig. 3.

This fine species is the Jackson representative of *L. opulenta* Con. of the Claiborne sand. It differs, however, from that species (a) in having finer, rounder and not depressed concentric striæ; (b) in having directly below the umbo a peculiar, straight, ventral margin for some distance; (c) in being less nasute posteriorly, and (d) in having the concentric lines on the post-umbonal slope less strongly marked and less distinctly interrupted and deflected by a radiating depression.

Locality, Jackson, Miss.

Meretrix pearlensis n. sp. Pl. XVIII, figs. 4 and 5.

The general characters of the species are shown by the figures. The concentric striation is precisely that of *Meretrix perovata* var. *aldrichi* (Bull. Am. Pal., No. 1, p. 48, pl. 1, fig. 1) and the young of these two forms sometimes approach each other closely in outline, yet there is always noticeable in *pearlensis* a tendency to become elongate, like *M. lævigata* of the Paris Basin.

Instead of making this a new species, we might speak of it as a marked variety of *aldrichi*, which itself is a variety of *perovata* Con. It seems to us, however, better to designate it by a new name. A variety of this species shows concentric liræ over its entire outer surface.

Locality, Jackson, Miss.

Tellina eburneopsis Con. Pl. XVIII, fig. 6.

Locality, Jackson, Miss.

Mactra mississippiensis Con. var. Pl. XVIII, fig. 7.

Locality, Jackson, Miss.

Periploma sp. Pl. XVIII, fig. 8, 8a, 8b.

Owing to the descriptions by Lea and Meyer of two fragmentary specimens of *Periploma*, it is now unsafe to propose a new name for this specimen. It differs considerably from either Lea's or Meyer's figures and diagnoses, but Meyer has stated (Ber. über die Senck. Nat. Ges. in Frank. A. M., 1887, p. 16) that his *P. complicata* occurs at Jackson.

Locality, Jackson, Miss.

Eucheilodon creno-carinata Heilp. Pl. XVIII, fig. 9. Proc. U. S. Nat. Mus., Vol. 3, 1880, p. 150.

Several specimens of this species, of a moderate size and rather imperfect, are among the Jackson material of this collection. A specimen, perhaps the adult of this species, is shown by fig. 9, pl. XVIII. The humeral carina, instead of being simply finely crenulate, is regularly nodular; moreover, there are thin, strong, revolving ribs on the part of the whorl below the carina. It is quite possible this should be regarded as a distinct species, yet it is unsafe to propose a new name until more material is at hand.

Locality, Jackson, Miss.

Pleurotoma (Ancistrosyrinx) columbaria Ald.

Aldrich described this species (Geol. Surv. Ala., Bull. 1, 1886, p. 31, pl. 6, fig. 9) from a fragment. The Lea Memorial Collection possesses a least one perfect specimen. Hence, in continuation of Aldrich's description it may be said: aperture slightly exceeding the spire in length; from the dentate carina downward on the body whorl to the end of the canal, there are many granular spiral lines; from the dentate carina toward the suture above, two coarse granular spiral lines are found; inside of these spirals the humeral zone is smooth, save faint traces of deeply curved longitudinal lines, the retral curvature is confined to this smooth zone.

Harpa jacksonensis n. sp. Pl. XVIII, fig. 10.

Specific characterization.—Size and general form as indicated by the figure; volutions 8; 1 and 2 very minute, smooth; 3 much larger, smooth; 4 somewhat larger than 3, showing vertical costæ in its first half, then assuming the characteristic markings of the remaining whorls; costæ on the body-whorl nine in number, somewhat deflected below the suture, as in *Drillia;* between the costæ the shell is finely cancellated with a net-work of raised lines; anterior canal slightly larger than usual for the genus.

Locality, Jackson, Miss.

Fusus inseotoides n. sp. Pl. XVIII, fig. 11.

Specific characterization.—Size and general outline as figured; whorls 12 or 13; apex acute; upper whorls broadly costate and with strong and weak alternating spiral lines; 5 spiral lines on the shoulder, decreasing in strength toward the suture; sides of the whorls with two or three strong, raised spiral lines, with two weaker ones above and two or three weaker ones below; longitudinal lines faint, showing only between the coarse spirals; columella twisted below; labium sharp and extending some distance away from the columella; sutures most remarkably constricted.

Locality, Jackson, Miss.

Fusus mortoni Lea, var. near *carexus* Har. Pl. XVIII, fig. 12.

We have already called attention to the variation that this species undergoes (Proc. A. N. S. Phila., 1895, p. 72) in the lower Claiborne beds. Now we have it from Jackson showing a moderately large size in many different forms. The specimen figured is unusually smooth; others show stronger spiral lines, especially below the carina.

Locality, Jackson, Miss.

Latirus leaensis n. sp. Pl. XVIII, fig. 13.

Specific characterization.—Size and general form as indicated by the figure; whorls 11; 1 and 2 smooth; 3 rather finely costate, remaining spiral whorls with eight rather low costæ, considerably wider than the interspaces, and arranged so that those on each succeeding larger whorl are a little behind those of the preceding or smaller whorl, and hence, although in line, the line falls back perhaps ¼ revolution from apex to base; spiral lines on each whorl 6, large, with an equal number of intermediate striæ. Body whorl ornamented by 8 costæ and alternate spiral lines to the end of the canal. Aperture contracted above and below; columella with 2 fairly well defined plaits.

Locality, Jackson, Miss.

Mazzalina inaurata var. Con. Pl. XVIII, fig. 14.

This is very near to, if not identical with, Conrad's *Mazzalina pyrula* from the lower Claiborne beds of Alabama. We have already shown in our report on the Tertiary of Arkansas how many forms this species assumes.

Locality, Jackson, Miss.

Murex marksi Harris. Pl. XVIII, fig. 15.

This, as well as typical *marksi* from the Eocene of Arkansas, approaches very closely to *M. engonatus*, and, when specimens enough shall have been collected, the two will doubtless be proven identical. This has seven costæ instead of six.

Locality, Jackson, Miss.

Monoceras jacksonium n. sp. Pl. XVIII, fig. 16.

Specific characterization.—Size and general form as indicated by the figure; whorls about 6; the upper 2 or 3 smooth; 4 and 5 strongly costate medially and below; spiral striæ about 8 in number; body whorl nearly smooth, with a strongly marked humeral zone on which are found about 6 spiral lines; medially smooth; basally more or less strongly spirally striate, with a depressed band across which the lines of growth arch forward, hence giving rise to a tooth like projection on the subcentral portion of the labrum; columella smooth, labrum lirate within, though the liræ do not extend far in the interior; anterior canal peculiarly truncated below.

Locality, Jackson, Miss.

Levifusus branneri Harris. Pl. XIX, fig. 1.

This species was described from a young specimen found in southern Arkansas. Fragments of larger specimens were found by the writer at White Bluff on Arkansas River, and still others in the Jackson beds of Mississippi. This is by far the most perfect large specimen yet known. Its close relationship to *Fulgur* must be evident to all.

Locality, Jackson, Miss.

Siphonalia jacksonia n. sp. Pl. XIX, fig. 2.

Specific characterization.—Size and general form as indicated by the figure; whorls 7 or 8; marked by 10 rounded, longitudinal costæ, each in width a little over one-half that of the intermediate spaces, strong from lower suture to greatest diameter of shell, and from there decreasing rapidly in size and vanishing before reaching the suture above; strong spiral striæ about 8 on each whorl, with an equal number of finer alternate lines; columella sharply bent as in *Strepsidura*.

Locality, Jackson, Miss.

Amauropsis jacksonensis n. sp. Pl. XIX, fig. 3.

Specific characterization.—Size and general form as shown by the figure; whorls 10, the upper 4 to 5 small, the other increasing in size rapidly and becoming shouldered; body whorl large, shouldered; umbilicus none or entirely hidden by a labial callosity. This differs from *A. perovata* Con. by its greater height, the well-defined shoulder on each whorl, and the absence of an umbilicus.

Locality, Jackson, Miss.

Cypræa pinguis Con. Pl. XIX, figs. 4, 4a.

The specimen herewith figured shows a few spiral whorls. Generally, however, they are covered over.

Locality, Jackson, Miss.

Cypræa dalli Ald. Pl. XIX, figs. 5a, 6a.

This was originally described from the Red Bluff horizon of Mississippi, yet it is quite abundant, and shows many varietal forms at Jackson, Miss.

Locality, Jackson, Miss.

CLAIBORNE STAGE.

Papillina staminea Con. var. Pl. XX, figs. 1, 2, 3, 4.

Fusus stamineus Con., Foss. Shells Tert. Form., 1833, p, 43, pl. 18, fig. 14, of 2d ed., 1835.

There is great confusion among the Claiborne species of *Fusus* and its allies, and here is a most typical example. *Papillina staminea* is quite fulgurate in appearance, having a row of compressed tubercles on the carina and a long beak. The specimens herewith figured show how greatly these features vary. These specimens have some parts in common with *F. irrasus* Con., and we are inclined to think all will prove to be one and the same species. The apices of this and related species are smooth and blunt.

Locality, Claiborne, Ala.

Papillina papillata Con. Pl. XX, fig. 5.

Fusus papillatus Con., Foss. Shells Tert. Form., 1833, p. 29; p. 53, pl 18, fig. 3, of 2d ed.

This large and beautiful specimen came from near Jackson, Ala., from the Claiborne sand horizon. Conrad's figure of the species does not show well some of its important characters, hence it is redrawn. Conrad remarks that it is rare at Claiborne. It is certainly so in a perfect state of preservation, but portions of its huge columella are quite common in some places.

Locality, Jackson, Ala.

LIGNITIC STAGE (UPPER).

Astarte smithvillensis var. Har. Pl. XX, fig. 6.

A. smithvillensis Har., Proc. Acad. Nat. Sci. Phila. 1895, p. 48, pl. 1, figs. 8a, 9a, b, c.

This species is extremely variable, and we have little doubt but that this Wood's Bluff specimen may be referred to it.

Locality, Wood's Bluff, Ala.

Protocardia virginiana? Con. Pl. XX, figs. 7 and 8.

This is probably a variety of the form described by Conrad as *P. lene* or *P. virginiana;* but since we have no specimens of that species, it is impossible to speak with certainty on the subject. Several species of this genus have been described from the Eocene, and it will be a serious matter to properly work out their synonymy. This form differs from *nicolletti* by its smaller umbones and smaller size.

Locality, Wood's Bluff, Ala.

Pleurotoma vaughani var. Pl. XX, fig. 9.

P. vaughani Har., Proc. Acad. Nat. Sci. Phila., 1895, p. 57, pl. 4, fig. 8.

The fine large specimens in the Lea Memorial Collection differ somewhat from typical *vaughani* as found in the lower Claiborne beds of Texas. The latter is smaller, less strongly costate, with liræ within the labrum. The upper carinal spiral whorl is slightly higher in this variety than in the type.

Cancellaria tortiplica Con. Pl. XX, fig. 10.

C. tortiplica Con., Am. Jr. Conch., 1865, p. 145, pl. 21, fig. 8.

Conrad cites this from Texas, but the Alabama specimens approach the outlines of his fig. 8, Pl. 21, more nearly than the Texan forms do. Aldrich refers this form to *evulsa* Brander (Bull. Geol. Surv. Ala., 1886, p. 52).

Cancellaria silværupis n. sp. Pl. XX, fig. 11.

Specific characterization.—General form and size as indicated by the figure; whorls about 6; 3 embryonic smooth; others with about 8 strong spiral lines between the suture above and the suture below; incremental lines especially prominent between the strong raised spirals; labrum sharp at edge but abruptly thickening and varicose a slight distance within; columella concave, two plaits on its subcentral portion and one marginal below.

This species reminds one somewhat of *C. quadrata* of England and *C. ulmula* of Texas.

Locality, Wood's Bluff, Ala.

Murex morulus Con. Pl. XX, fig. 12.

In this collection there are specimens of various sizes, and they show one marked peculiarity. When small and young the anterior canal is long but curved; afterwards it seems to grow no more in length, but becomes extremely bent or twisted, and a large umbilicus is formed.

Locality, Wood's Bluff, Ala.

Latirus imbricatulus n. sp. Pl. XXI, fig. 2.

Specific characterization.—General form and size as indicated by the figure; whorls 10; 1–4 embryonic, smooth; the remaining spiral whorls with about 7 costæ crossed by about 6 very strong revolving striæ between which there are an equal number of fine spirals. Labrum lirate within; columella very much twisted and showing signs of plications, especially at the basal angle. Umbilicus not large, but well defined. The most peculiar feature of this species is the imbricate appearance of the incremental lines. This strongly reminds one of some of the Muricidæ. The general form of the species is much like *Latirus rugatus* Dall from the Ballast Point Silex beds.

Locality, Wood's Bluff.

Pyropsis perula Ald. Pl. XXI, fig. 1a.

This is such an unusually large and fine specimen, it has seemed worth while to have it figured, although it comes from the typical locality.

Sipho ? erecta Ald. Pl. XXI, fig. 3.

We are inclined to regard this beautiful, though imperfect, specimen as an adult form of Aldrich's *S. erecta.* The punctate appearance in the indented spiral lines indicates a relationship to the

Tectibranchs. The matter can only be decided when more perfect material is at hand.

Locality, Wood's Bluff, Ala.

Cypræa smithi Ald. Pl. XXI, fig. 4.

This is broader posteriorly than typical *smithi*, and has a less conspicuous posterior termination of the labium, yet it is most likely of the same species. It seems to be the forerunner of *C. dalli* Ald.

Locality, Wood's Bluff, Ala.

Solarium huppertzi var. Har. Pl. XXI, fig. 5.

The markings on this specimen are somewhat finer than those of typical *huppertzi*, but this may be only a varietal feature. Again, *huppertzi* was described from a young, small specimen; this is more nearly full grown.

Solarium sylværupis n. sp.

Syn. *S. texanum* Dall, Tr. Wag. Free Inst. Sci., Vol. III, p. 326.

After examining the type of *texanum* in the Academy's collection, it was found to be the same as Conrad's *scrobiculatum*. Hence the larger, beautiful form described by Dall under the name "*Texanum* Gabb" from Wood's Bluff, must have another name.

Solariella sylværupis n. sp. Pl. XXI, fig. 6,

Specific characterization.—Size and general form as indicated by the figures; whorls about 6, with about 5 striæ on each; slightly shouldered at the suture, bearing there a row of beads or tubercles; nacreous within; umbilicus crenate at the periphery, granularly striate within.

Locality, Wood's Bluff, Ala.

LIGNITIC STAGE (LOWER).

Meretrix mortoniopsis var. Hp. Plate XXII, figs. 1 and 2.

The figures represent two well-preserved specimens of this species from the lower Lignitic. It seems well to have them accurately figured, since their relationship to the species of this genus described by Rogers and Conrad from Virginia is still in an unsettled state.

Locality, Bell's Landing, Ala.

Tellina lignitica n. sp. Pl. XXII, fig. 3a.

Specific characterization.—Size and general form as indicated by the figures; substance of shell very thin; smooth; 2 cardinal teeth in each valve; a furrow in the upper anterior margin of the left valve causes the same to form two obscure teeth.

Locality, Gregg's Landing, Ala.

Panopæa porrectoides var. Ald. Pl. XXII, fig. 4.

By comparing our figure with Aldrich's, it will be seen that typical *porrectoides* is much larger, more developed anteriorly, and with umbones nearer the center of the shell. Yet they both belong to the same section of the genus, and it is almost certain that the one is the ancestor of the other.

Locality, Gregg's Landing, Ala.

Lucina greggi n. sp. Pl. XXII, figs. 5 and 6.

Specific characterization.—Size and general form as indicated by the figure; marked exteriorly with concentric lines not deeply incised; interior with two diverging cardinal teeth and an anterior lateral; anterior muscular scar very large and extending from the anterior lateral tooth to the basal margin of the shell; posterior muscular scar comparatively small, rotund; interior naturally (or by disease) much thickened or calloused, a shallow channel extending from a little above the upper margin of the posterior muscular scar obliquely to near the base of the anterior scar.

A small specimen, magnified in fig. 5, and probably of this species, shows an extremely deeply excavated ligament pit, reminding one of *Lucina claytonia.* In the old type specimen this pit broadens out and the ligament seems to be attached very much as in *Dosinia.*

Locality, Gregg's Landing, Ala.

Pleurotoma nasuta Whitf. Plate XXII, fig. 7.

This species is extremely variable in ornamentation. Sometimes the spiral lines are few and coarse; at other times they are many and fine. Our figure shows a specimen of the latter type.

Locality, Gregg's Landing, Ala.

Fusus rugatus Ald. Pl. XXII, fig. 8.

The specimen figured is more perfect than the type; it shows well the characters of the anterior canal, especially its ornamentation.

Locality, Gregg's Landing, Ala.

Pseudoliva vetusta. Pl. XXII, fig. 9.

P. vetusta Con. Foss. Sh. Tert. Form., 1833, p. 44.

The large size to which certain species described originally from Claiborne often attain in the Bell's Landing Lignitic has already been the subject of various observations. Perhaps no species shows to better advantage this tendency than does the present. Note the great sutural callosity in connection with like developments on *Volutilithes petrosus* and *Rostellaria trinodifera.*

Cassidaria brevidentata Ald. var. Pl. XXII, fig. 10.

This specimen shows an unusually large number of nodules on the humeral carina. In front, the two lower carinæ are without nodules, while on the back all three carinæ are strongly nodular.

Locality, Bell's Landing, Ala.

Levifusus trabeatus Con. Pl. XXII, fig. 11.

Here is one of the largest and the most compact varieties of this species. The labral liræ are unusually well marked; the carinal nodules are very large but imperfectly defined.

Locality, Bell's Landing, Ala.

Triton (Ranularia) eocenensis Ald. Pl. XXIII, fig. 1.

Upon the whole, this is the most perfect specimen of this species yet found. Its apex is somewhat eroded and might be represented a little more acute. Strangely enough, it does not show varices on the whorls as is usual in specimens of this species.

Locality, Gregg's Landing, Ala.

Caricella podagrina Dall. Pl. XXIII, fig. 2.

The specimen herewith figured is so exceptionally fine that it has seemed worth while to have it thus specially noticed in our paleontological literature.

From the type locality, Bell's Landing, Ala.

Fusus bellanus n. sp. Pl. XXIII, fig. 3.

Specific characterization.—Size and general form of the shell as indicated by the figure; whorls 8 or 9; embryonic 3 smooth; others marked by from 8 to 10 sharp, flattened peripheral spines, at whose base or immediately at the suture a subordinate series of spines occur on the larger whorls; canal nearly closed, long, straight; labial callus thin.

At first sight this seemed like a large, well-formed *F. mohri*, but on comparing details it was found to be very distinct.

Locality, Bell's Landing, Ala.

Cyllene bellana n. sp. Pl. XXIII, fig. 4.

Specific characterization.—Size and general form as indicated by the figure; whorls about 8; embryonic 3 small, smooth, others finely costate and with fine revolving lines; costæ strongest on the central portion of the whorls (*i. e.*, on the shoulder) vanishing above, reaching the suture below; columella twisted, *Strepsidura*-like below; labrum lirate within; exterior of body whorl with extremely fine revolving lines on its central portion, and with coarser lines above the carina and near the base.

Locality, Bell's Landing, Ala.

Solarium greggi n. sp. Pl. XXIII, fig. 5, 5a.

Whorls about 5. Nuclear whorls rounded smooth; remaining whorls with three crenulate spiral lines and one smooth, strong spiral line just above the suture. Periphery above the body whorl with one deeply incised spiral line, thus rendering the periphery of the body whorl obtuse. Umbilicus small, with radii extending from its periphery about ⅓ way across the body-whorl, and having a raised spiral coarsely crenulate carina medially located.

Locality, Gregg's Landing, Ala.

MIDWAY STAGE.

Pleurotoma (Cithara ?) leania Harris. Pl. XXIII, fig. 7.

This species is rather remarkable for the extreme shallowness of the retral sinus. It seems never to attain a much greater size than that indicated by the figure (× 2½).

Type, Lea Memorial Collection, Academy of Natural Sciences of Philadelphia.

Locality, Matthew's Landing, Ala.

Pleurotoma (Surcula) ostrarupis Harris. Plate XXIII, fig. 8.

This species was described from a peculiar looking fragment from the Midway beds on Brazos River, Texas. It proves to be quite common in the upper Midway of Alabama.

Locality, Matthew's Landing, Ala.

Natica mediavia ? Harris. Pl. XXIII, fig. 8.

N. mediavia Har., Bull. Am. Pal., No. 4, 1896, p. 117, pl. 12, fig. 15.

While working over a large amount of material from the uppermost Midway limestone, as exposed on the Chattahoochee, several fragments of *N. mediavia* were found of the size indicated by the figure of the type in Bulletin 4. It was soon found that fragments, too, indicated a considerably larger size for some specimens as found 1⅓ miles northeast of Clayton. Fragments of the body whorl of what would seem to be the same species occur at Matthew's Landing. They certainly belong to the species herewith figured. Hence it is quite probable that this larger specimen, much compressed vertically, belongs to the same species as the smaller specimen figured in Bulletin No. 4.

Locality, Matthew's Landing, Ala.

EXPLANATION OF PLATES.

PLATE XVIII.

Figs. 1 and 2. *Pecten claibornensis* Con.
Fig. 3. *Leda regina-jacksonis* n. sp.
Fig. 4 and 5. *Meretrix pearlensis* n. sp.
Fig. 6. *Tellina eburneopsis* Con.
Fig. 7. *Mactra mississippiensis* Con.
Figs. 8a. *Periploma* sp.
Fig. 8b. *Periploma,* hinge magnified.
Fig. 9. *Eucheilodon creno-carinata* Heilpr.
Fig. 10. *Harpa jacksonensis* n. sp.
Fig. 11. *Fusus insectoides* n. sp.
Fig. 12. *Fusus mortoni* Lea var. near *carexus* Har.
Fig. 13. *Latirus leaënsis* n. sp.
Fig. 14. *Mazzalina inaurata* var. Con.
Fig. 15. *Murex marksi* Harris.
Fig. 16. *Monoceras jacksonium* n. sp.

PLATE XIX.

Fig. 1. *Levifusus branneri* Harris × $\frac{4}{5}$.
Fig. 2. *Siphonalia jacksonia* n. sp.
Fig. 3. *Amauropsis jacksonensis* n. sp.
Fig. 4 and 4a. *Cypræa pinguis* Con.
Fig. 5, 5a, 6, 6a. *Cypræa dalli* Aldr.

PLATE XX.

Figs. 1, 2, 3 and 4. *Papillina staminea* Con. var.
Fig. 5. *Papillina papillata* Con.
Fig. 6. *Astarte smithvillensis* Har. × $\frac{7}{3}$.
Figs. 7 and 8. *Protocardia virginiana ?* Con. × $\frac{5}{4}$.
Fig. 9. *Pleurotoma vaughani* Har.
Fig. 10. *Cancellaria tortiplica* Con. × 3.
Fig. 11. *Cancellaria sylværupis* n. sp.
Fig. 12. *Murex morulus* Con.

PLATE XXI.

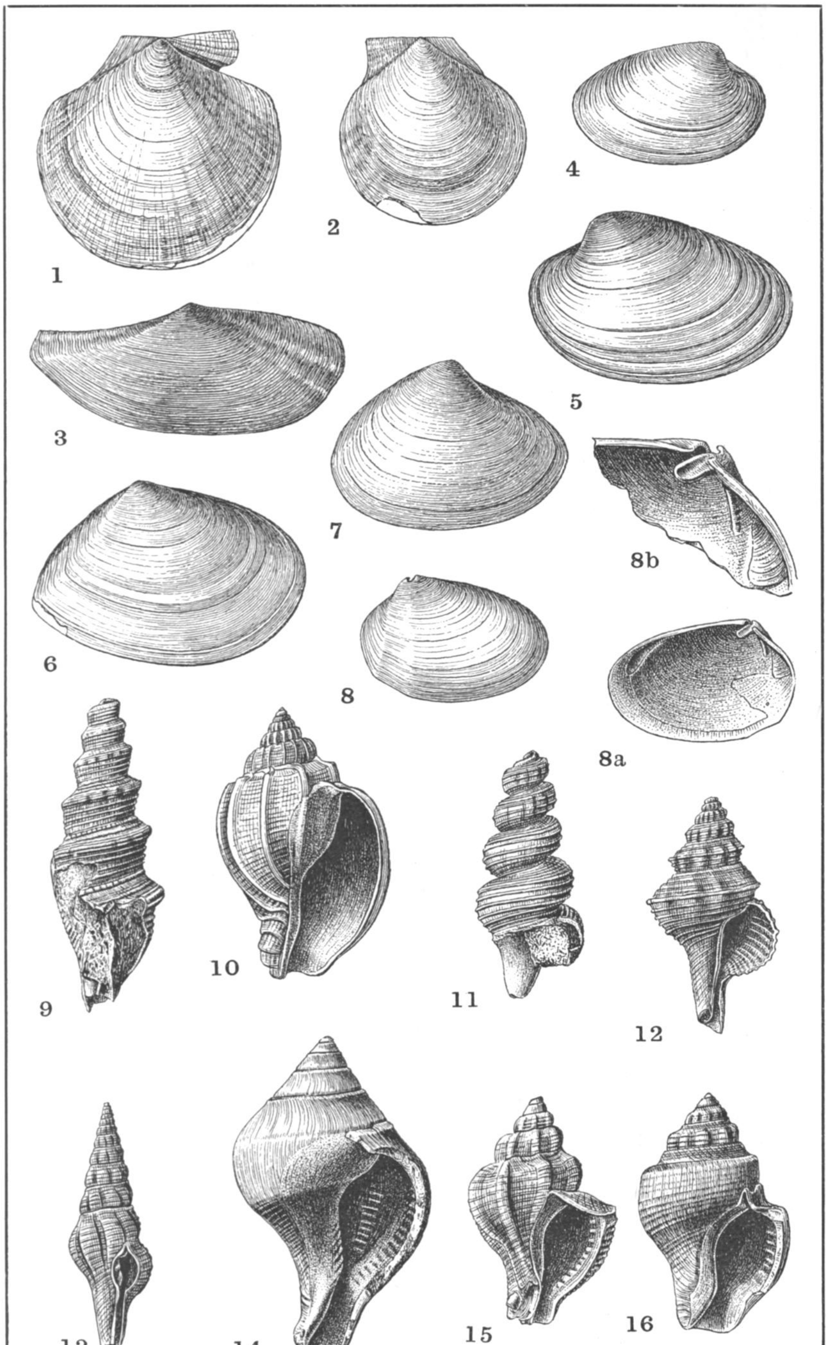
Figs. 1 and 1a. *Pyropsis perula* Ald.
Fig. 2. *Latirus imbricatulus* n. sp.
Fig. 3. *Sipho erecta* Ald.
Fig. 4. *Cypræa smithi* Ald.
Fig. 5. *Solarium huppertzi* var. Har. × 2.
Fig. 6. *Solariella sylværupis* n. sp.

PLATE XXII.

Figs. 1 and 2. *Meretrix nuttalliopsis* Heilpr.
Fig. 3. *Tellina greggi* n. sp.
Fig. 4. *Panopœa porrectoides* var. Ald.
Figs. 5 and 6. *Lucina greggi* n. sp.
Fig. 7. *Pleurotoma nasuta* Whitf.
Fig. 8. *Fusus rugatus* Ald.
Fig. 9. *Pseudoliva vetusta* Con.
Fig. 10. *Cassidaria brevidentata* Ald. $\times \frac{5}{4}$.
Fig. 11. *Levifusus trabeatus* Con.

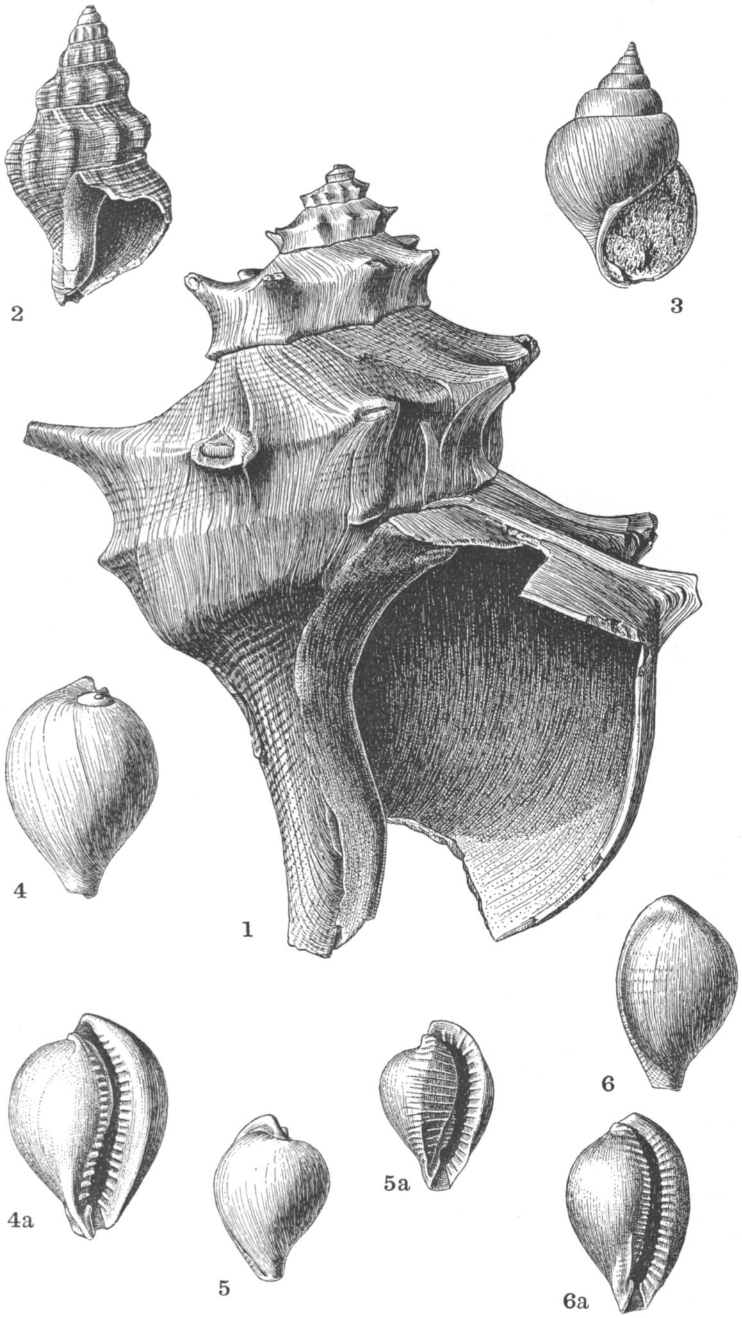
PLATE XXIII.

Fig. 1. *Triton (Ranularia) eocenensis* Ald.
Fig. 2. *Caricella podagrina* Dall.
Fig. 3. *Fusus bellanus* n. sp.
Fig. 4. *Cyllene bellana* n. sp. × 2.
Figs. 5, 5a. *Solarium greggi* n. sp. $\times \frac{12}{5}$.
Fig. 6. *Pleurotoma (Surcula) ostrarupis* Har. × 2.
Fig. 7. *Pleurotoma (Cithara) leania* Har. $\times \frac{5}{2}$.
Fig. 8. *Natica mediavia ?* Har.

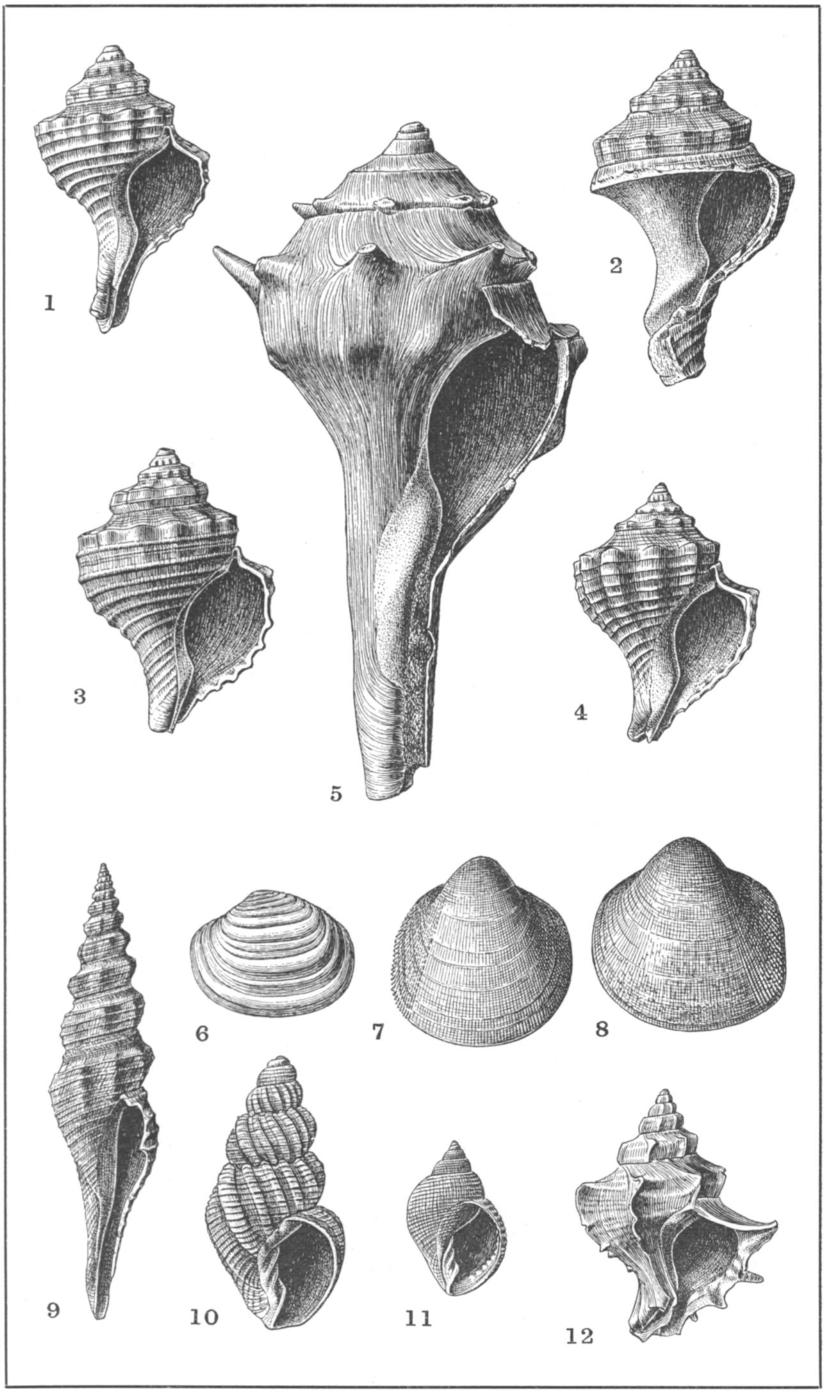


HARRIS. EOCENE MOLLUSCA OF GULF STATES.

(JACKSON SPECIES.)



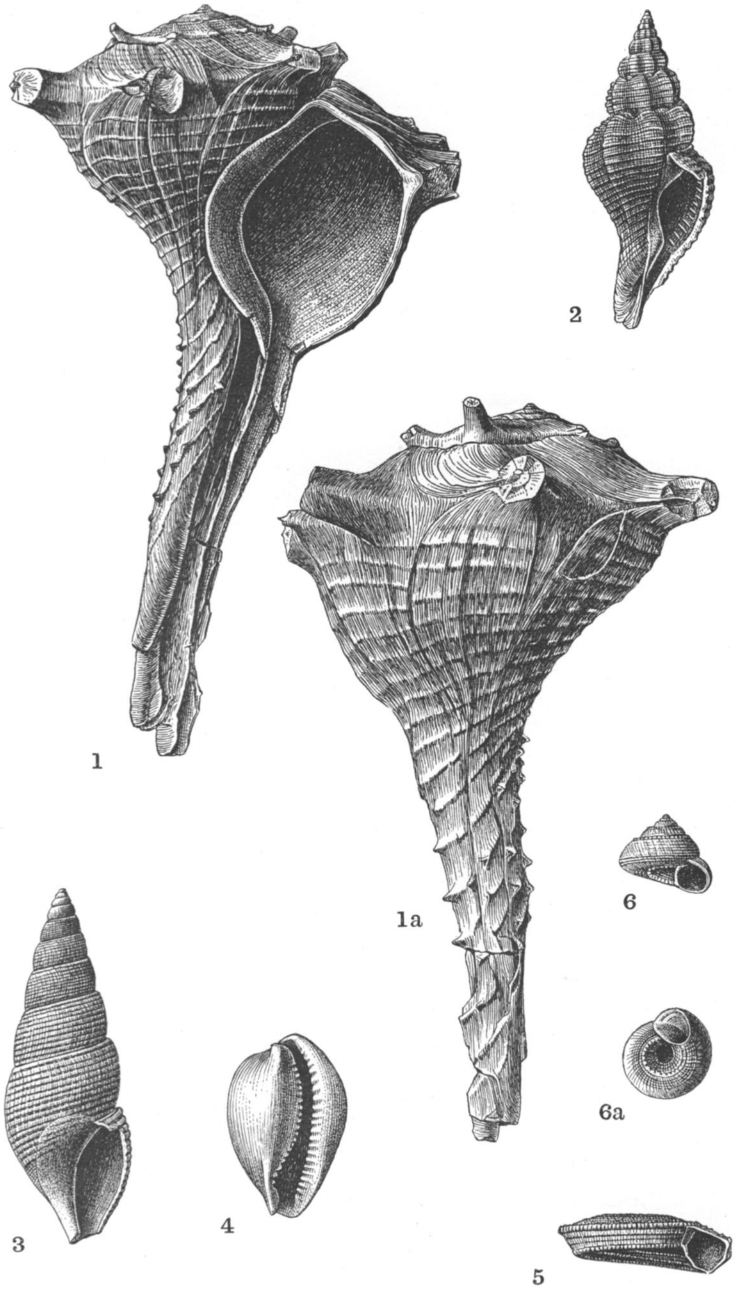
HARRIS. EOCENE MOLLUSCA OF GULF STATES.
(JACKSON SPECIES.)



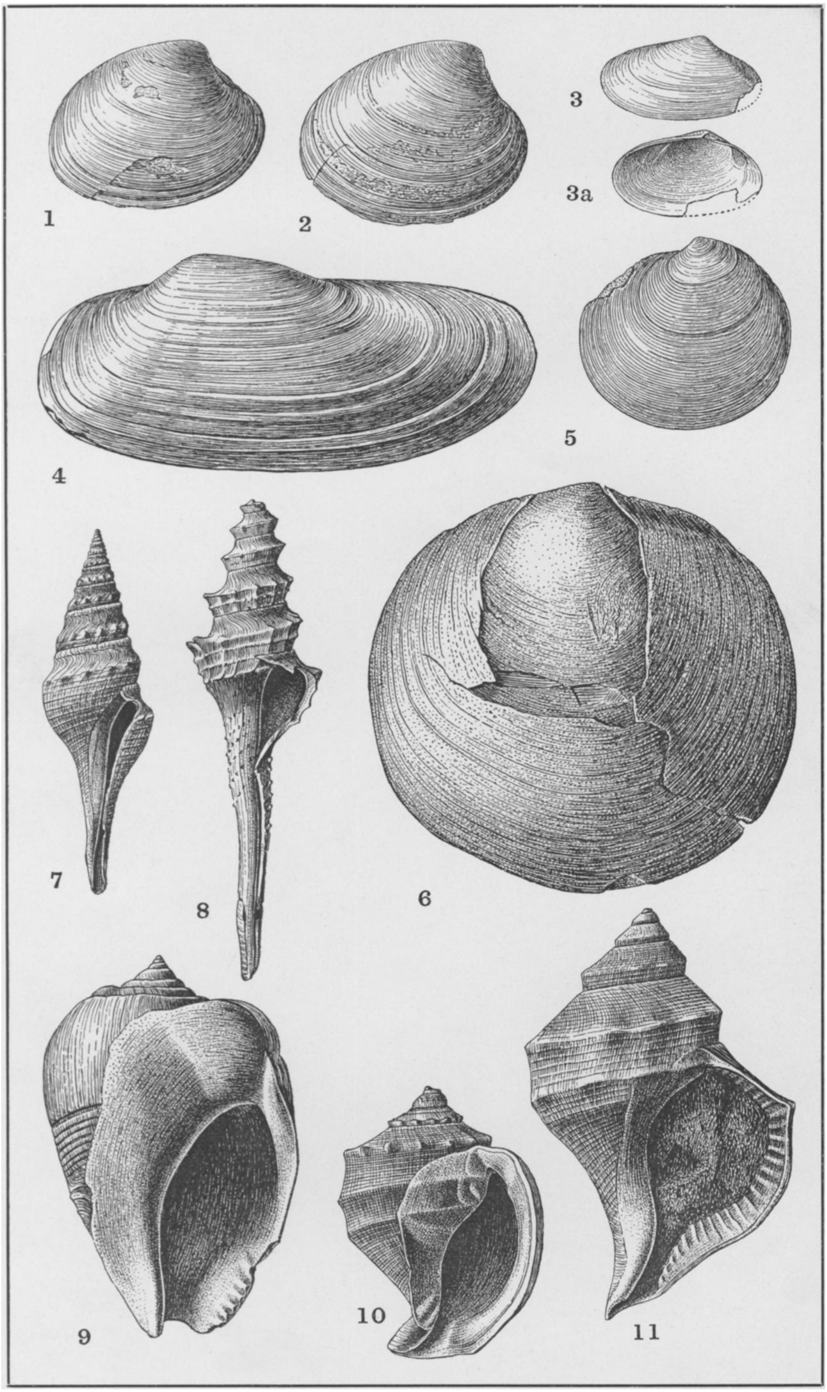
HARRIS. EOCENE MOLLUSCA OF GULF STATES.

(1-5 CLAIBORNE SPECIES.)

(6-12 UPPER LIGNITIC SPECIES.)

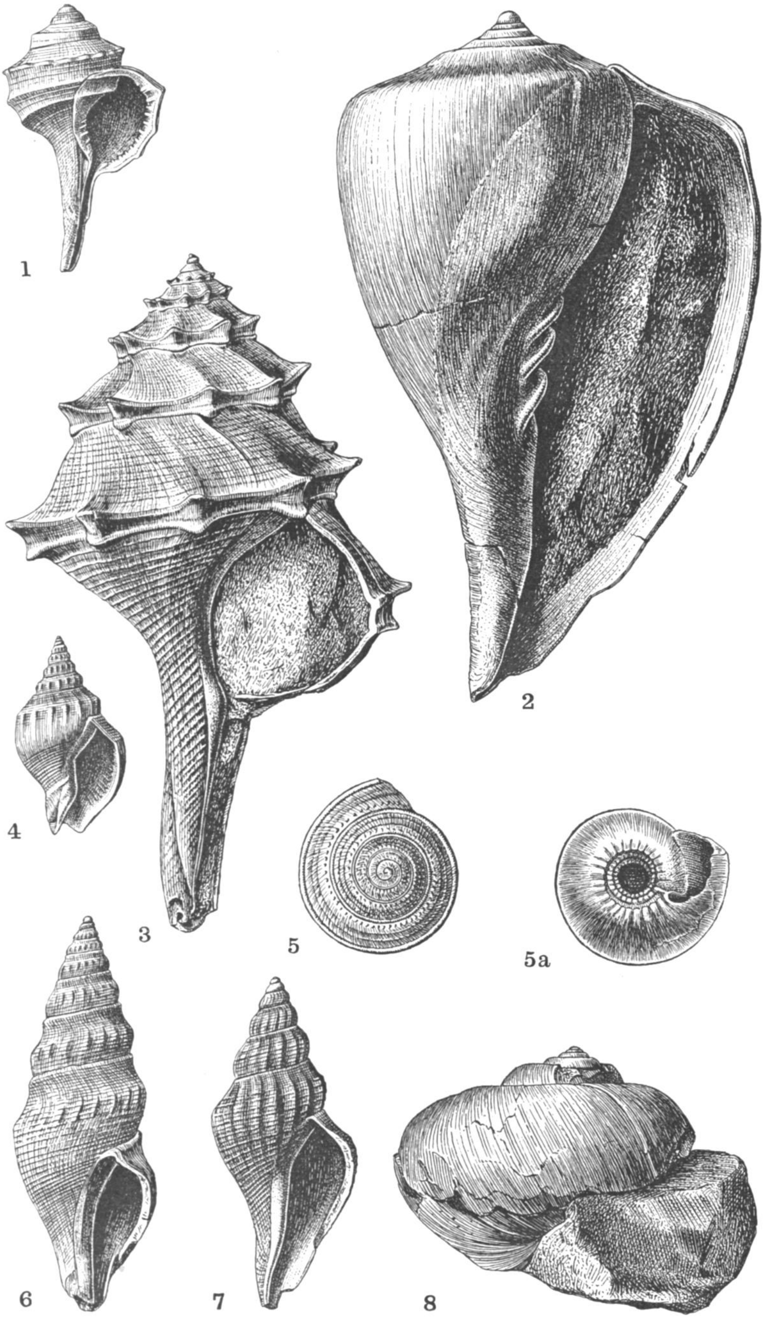


HARRIS. EOCENE MOLLUSCA OF GULF STATES.
(LIGNITIC SPECIES.)



HARRIS. EOCENE MOLLUSCA OF GULF STATES.

(LOWER LIGNITIC SPECIES.)



HARRIS. EOCENE MOLLUSCA OF GULF STATES.

(LOWER LIGNITIC AND MIDWAY SPECIES.)